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PAPERS

IN

POLITE ARTS.

The GOLD MEDAL *of the Society was this Session voted to Mr.* JOHN FAREY, *Jun. of Upper Crown Street, Westminster, for an Instrument for describing or drawing Ellipses of various Forms and Sizes. The following Communications were received from him; Two explanatory Engravings are annexed; and a complete Instrument is preserved in the Society's Repository.*

SIR,

WITH this you will receive an instrument of my invention, for describing ellipses, which I wish you to submit to the Society of Arts, if you think it an object worthy their attention.

Having constant occasion, in my profession, to delineate circular objects in perspective, I found great difficulty in drawing ellipses with sufficient accuracy and neatness by hand, and therefore, at different times, tried all the inventions I ever heard of for the purpose, but without finding them at all applicable to the art of drawing wheels, cylinders, and other mechanical objects in perspective; notwithstanding that many would produce a very fair and delicate curve, they were not general in their applications and adjustments.

About three years ago, I invented the instrument now sent you, and have since made constant use of it, in perspective drawing, for which it is perfectly well adapted. I have in that time made about thirty of them for different artists and gentlemen, who have been so much pleased with them, as to determine me to make it public, through the medium of your useful Society, if they esteem it worthy a place in their Transactions.

I shall be happy to give any farther explanation which the Society, or their Committee, may require, and am,

Sir,

Your most obedient Servant,

J. FAREY, Jun.

No. 12, *Crown-street, Westminster,*
March 2d, 1813.

To C. Taylor, M. D. Sec.

Reference to the Engravings of Mr. Farey's Ellipto-graph, or instrument for describing Ellipses.—Plate 4, Fig. 1, 2, *and* 3; *and Plate 5, Fig.* 1, 2, *and* 3.

This instrument is completely general in its properties, being capable of describing ellipses of any possible dimensions,

Mr. Farey's Elliptograph, or Instrument for describing Ellipses.

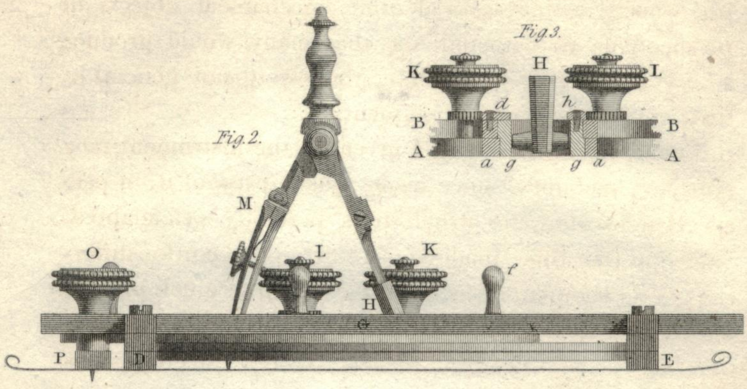


Fig. 3.

Fig. 2.

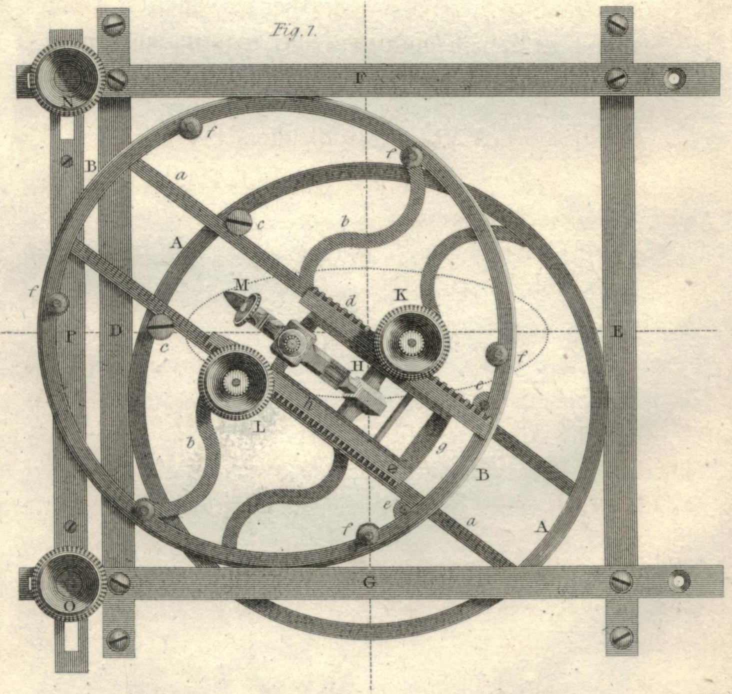


Fig. 1.

Drawn by J. Farey. Engraved by Jas. Davis.

tions or proportions of diameter, within the size of the instrument, as is clearly shewn by the specimens of its performance given in Plate 5; these were drawn upon the copper plate by the instrument itself, which is equally applicable for engraving as for drawing; the general size of the instrument is twice as large as the drawings in Plate 4: when it is used, it is placed upon the paper, or surface where the ellipsis is to be described, and the square frame held fast by one hand, while the moving circles are turned round by the other, to trace the curve by means of a drawing pen, properly situated for that purpose. Fig. 1, of Plate 4, represents the whole instrument, looking down upon it in plans, whilst fig. 2 is an elevation, to shew the thicknes of its several parts; and fig. 3 is a cross section.

The moving parts of the instrument consist of two brass circles (A B) of equal dimensions, so fitted together that they will slide one upon the other, by means of the pinion K, to separate their centres to any required distance within the extent of their radii; the circles have no central bar, but instead thereof have two bars, *a a*, parallel to each other, and at some distance from the centre, leaving an open space between them, in which the drawing pen or tracing point is situated; there are also crooked arms, *b b*, proceeding from the bars *a a* to the circular rim, to give them sufficient strength, and these being all the bars across the circle, leaves them sufficiently open to see the curve as it is traced beneath, by the drawing pen.

The circles are united by screws at *c c*, screwed into the lower circle, and the two bars *a a* of the upper circle are included between them; this keeps the two together, but at the same time admits of sliding them one upon the other in the manner of the figure: At *e e* are two other screws,

screws tapped into the other circle, and retaining the bars of the lower one in the same manner. The centre pin for the pinion K is fixed on one of the arms of the lower circle, and acts upon a rack *d*, screwed to the upper circle, so that it separates the two when turned round by the finger and thumb, applied to the middle head K, upon it, but the circles are fitted together so tight by the screws, that they will not separate from each other except by the power of the pinion, and may, in the motion of the instrument, be considered as firmly united together, but capable of having any degree of eccentricity given to them by means of the pinion K.

The circles are turned round in their square frames, by means of six small handles, *ffffff* fixed in the run of the upper circle; to any two of these the thumb and finger of the right hand are applied.

The frame or fixed part of the instrument consists of 4 straight rules DE, and FG, the latter are screwed down upon the former, and are therefore in a plane above them, as is shewn by fig 2, plates of brass being interposed between them, at the angles, to separate them to a proper distance.

The lower circle 4, is fitted in between the two lower rulers, D E, and slides freely to the direction of their length, but has no shake sideways; in like manner the upper circle B is included between the edges of the rulers FG, and therefore moves in a right line, in a direction perpendicular to the former; thus the frame forms two grooves at right angles to each other, in which the circles revolve, with an eccentric motion, the upper circle sometimes hanging over the lower rulers, and the lower circle passing under the lower rulers, as is shewn in the figure.

The result of this motion is, that a tracer placed on any part of the circles when they are rendered eccentric, will describe an ellipsis on the surface beneath, but the only tracer which is used for drawing, is situated between the bars *a a*; into this space a small carriage or frame *g* is fitted to slide freely from one end of the opening to the other, by means of a rack *h* screwed on one side of it, with a milled head and a pinion L turning on a center pin fixed into the upper circle BB, the frame has a brass socket, H, moving on a center pin fixed across it, and having a hole in it for the reception of the leg of a pair of common drawing compasses, M, which stand as in fig. 2, when in use, the pen tracing the curve upon the paper; but they admit of being lifted up, on the center pin of the socket H, and then for the convenience of setting the instrument, the circles can be turned about without making any marks.

The transverse section, fig. 3, shews the frame *g g*, and the manner in which it is fitted into the bars *a a* of the circles, also the socket H, moving on its center pin, and the two pair of racks and pinions, K *d*, and L *h*, the former for the purpose of separating the circles, and the latter for moving the frame *g* along between them; the frame *g* is so fitted that it continues at the same point, with respect to the upper circle B, when the center of the two are separated from each other by the motion of the pinion K, and may therefore be considered as immoveable when the lower circle only is moved.

To keep the frame of the instrument stationary upon the paper whilst it is used, two sharp pins are fixed in the ruler P, which penetrate the paper, and make it quite fast, when they are held down by the finger and thumb of the left hand applied upon the heads of the nuts, NO; these are introduced to unite the ruler P with the ends of the two upper rulers FG, but the screws of these nuts passing through grooves in the ruler P, admit the whole instrument to be moved on the paper a small quantity parallel to itself, in the direction of the ruler P, though the friction of the fitting is such, that it will not move unless some force is applied for that purpose; the same screws, where they pass through the ends of the rulers FG, are also received in grooves, so that by unscrewing the nuts, the whole instrument can be moved sideways, a small quantity nearer or farther from the ruler P, but by screwing these nuts fast, the screws become fixed to FG, though they still admit of moving in the grooves of the ruler P.

The reader will now comprehend the structure of the instrument; the circles are capable of revolving in the frame set with any required degree of eccentricity; and the tracing point or pen can be removed to any required distance from the center of the upper circle B; the compasses M, being opened to the extent of a mark made upon one of the bars of the frame, and then being fixed in the instrument, by pushing them into their socket H, it is ready for use.

In this state, suppose the two circles set by the pinion K exactly concentric with each other, and the pinion L turned till the end of the frame g comes in contact with the rim of the instrument, then the point of the pen M will come exactly in the center of both circles, and the circles being turned round in the frame by their handles, the pen will only mark a small point on the paper, which will be the center of any curve the instrument may be afterwards made to describe.

By turning the pinion L, the point of the pen may be removed to any distance from the center, within the radius of the instrument, and it will, when turned round, describe a circle, which may be made of any radius, from the smallest point to the size of the circles; this is the simplest case of the instrument, and may be considered as an ellipse when the difference of its diameter is infinitely small; see X in plate 5 of specimens, fig. 1; when the circles are rendered eccentric it draws an ellipsis, and by turning the pinion L the breadth of the ellipsis will be determined, and by the other (K) the difference between its breadth and length is regulated.

Suppose the pinion K turned to render the circles eccentric without moving the other pinion, the pen therefore remains in the center of the upper circle, in this case the pen will describe a straight line, equal in length to twice the eccentricity of the circles, see Y, fig. 1, plate 5; this is evident, because the circumference of the upper circle BB, moving against the straight edge F and G, its center must describe a line parallel thereto; this case may be considered as an ellipsis without breadth, for if the pen is set the smallest quantity out of the center of the upper circle, it will draw a very narrow ellipsis, and by setting it at different distances from the center, any required proportion of ellipses may be described, as shewn in Plate 5, of specimens.

The conjugate diameter will in all cases be equal to double the distance from the point of the pen to the centre of the upper circle, and the difference of the conjugate and transverse diameters will be always equal to twice the eccentricity of the two circles.

The principle on which this instrument operates, is the same as the trammel, employed by carpenters, and other artificers, for striking ovals, by means of a board with two cross grooves in it, and a beam or radial bar, which has two pins to operate in the grooves, and a third to draw the curve; to prove this, suppose P P, and Q Q, fig. 2, Plate 5, to be the two diameters of the intended ellipsis, then, if the three points *d*, *e*, and *f*, are marked upon an inflexible bar, and the points *d* and *e* constantly applied to the two diameters, P Q, and a tracing point situated at *f* is carried round by the bar, it will describe an ellipsis R R; this is the principle of the trammel, but its defects, as at present constructed, are well known.

First, it will not draw any ellipsis which is less in either of its dimensions than the size of the board or frame containing the cross grooves, representing the two diameters P P, and Q, Q; nor can it draw much larger, unless the diameters are nearly equal.

Secondly, it is difficult to fix the cross firmly on the paper, or to bring it to the exact point required for the centre of the ellipsis, and, thirdly, when this is done, the most perfect workmanship in the grooves and sliders, can scarce ensure that it shall move freely without shake or improper motions, so as to make an accurate and fair curve.

All these defects are obviated in the present invention, by extending the two points *d* and *e* to become the largest circles, A B, fig 1, plate 4, and then the rulers DE, and FG, represent the sides of the grooves, in which the points move; the point of the pen of the compasses M, now represents the point *f* in all its properties of moving along the bar, to enlarge or diminish the ellipsis, but with the advantage that it can be actually brought to coincide with one of the points *d* or *e*, when of course it will draw a straight line, and if brought to agree with both of them, it will describe only a point; therefore this instrument will describe any possible variety of ellipses within the limits of its radius, either as to size, or proportion of its diameter. An example of which will be seen in Plate 5, fig. 1, containing instances of its powers of drawing a right line, a circle, and various ellipses.

Directions

Directions for using the Instrument.

WHEN any ellipsis of given dimensions is to be drawn, the paper is prepared by drawing the two diameters, about four inches long, upon each of these, set off with the compasses the four points where the intended curve is to intersect the lines. This preparation is not essential, but it assists in setting the instrument in its true place; first, fill the drawing pen of the compasses with Indian ink from a camel-hair pencil, (for common ink soon destroys the steel points of the pen;) then adjust the screw, that the pen will draw a proper line; and fix the compasses into the brass socket H, so that they have no shake or looseness in the fitting; turn the circles about in their frame so that the pen is towards the side marked G; now place the whole instrument in such a position, that the centre of the four rulers coincides with the centre of the intended ellipsis. This may be estimated; or, by previously producing the two diameters, the frame may be set very nearly, taking care to place the upper rulers F G parallel to the greatest diameter. Here fix the instrument, by pressing the two pins or points of the ruler P, into the paper, and hold it fast, by placing the thumb and forefinger of the left hand upon the nuts N O, leaving the other hand at liberty to turn the circles about, by applying the finger and thumb to any opposite two of the small handles g. Now, by turning the pinion L, remove the drawing pen to the extent of the shortest diameter of the ellipsis; then turn the circles one half round by the handles, and examine if the point of the pen comes exactly to the opposite end of the shortest diameter; if it does not, adjust the error one half, by moving the pen by turning the pinion L; and the other half, by moving the whole frame on the paper. The screws of the nut NO, will admit this motion, being fitted into grooves in the ruler P, (which should not be disturbed,) but the nuts should not be screwed so tight as to prevent the motion; then, by returning the circles back again, its accuracy will be ascertained; for if it meets the former mark, it proves that the circles are in the right centre, and the compasses are set to the proper diameter for the conjugate axis; now turn the pen towards the length of the ellipsis, and without altering the compasses or pinion L, slide the circles one upon the other by the pinion K, till the point of the pen arrives at the mark made for the length of the ellipsis; turn the circles half round to the opposite end, and if they match the mark made there, the adjustment is correct; if not, one half the error must be corrected by moving the circles with their pinion K, and the other by moving the whole frame on the paper. To do this, the nuts N O must be made slack, and then the frame will be at liberty to move, as before described; but the ruler P must never be removed after the first fixing, and the side D of the frame will of course be a greater or less distance from it.

The adjustments being made in this manner, the pen may be suffered to rest upon the paper, and trace round the curve. The precautions of turning the circles to the opposite sides will be unnecessary, except where great accuracy is required. In turning the circles about, a habit will be easily acquired of pressing with equal force on the two opposite sides of the circles, and then they will turn round pleasantly.

It will save much trouble in adjusting the place of the instrument upon the paper, if the compasses before being put

Specimens of Curves
Drawn by
Mr. Farey's Elliptograph.

Fig. 1.

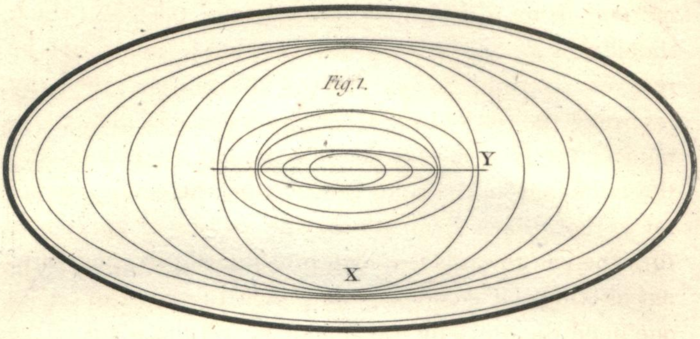


Fig. 2.

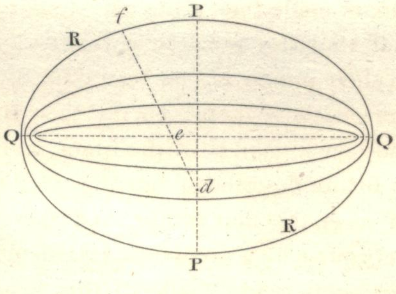
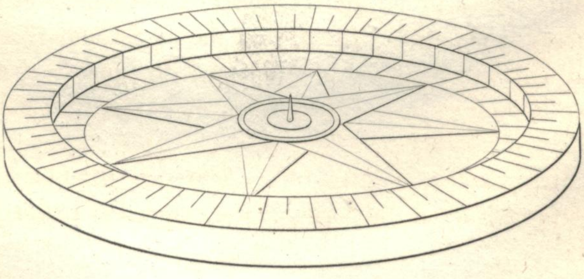


Fig. 3.



Drawn by J. Farey.

Engraved by Jas. Davis.

put into the socket H, are opened to the extent of the arch struck upon the ruler G; then, when the compasses are put into their socket, and the pinion L turned back as far as it will go, the point of the pen will come exactly into the centre of the ellipsis which it is intended to describe; if, therefore, the centre of the ellipsis is marked upon the paper, and the point of the pen (when opened to the above extent, and the pinion L turned till the end of the frame *g* touches the rim of the circle,) being brought by moving the whole instrument on the paper, to this mark the instrument is adjusted at once as to its position on the paper, and the other adjustments for the dimensions of the ellipsis required to be drawn, must be made as before directed.

After having drawn an ellipsis, if it is required to draw another parallel to it, to shew the thickness of a circular plate, for instance, as in fig. 3, Plate 5, set the pen opposite G, Plate 4, fig. 1, and by the screws of the nuts N O, as before mentioned, being fitted in grooves, the frame and the circles may be moved with the longer axis parallel to itself, so as to describe another ellipsis parallel to the former.

SIR,

SINCE I had the honour of receiving the Gold Medal, which the Society for the Encouragement of Arts, &c. awarded to me for my invention of the Elliptograph, I have made two instruments on a larger scale, for engraving or etching ellipses on copper-plates, which will enable Engravers to give the same beauty of outline to their work which is attainable by its assistance in drawing. These instruments do not differ from that which I have described in my former communication to the Society, except in having screw adjustments instead of rack and pinion movements; their dimensions are enlarged, and their workmanship is required to be exceedingly accurate, because the smallest possible motion or shake in any of the fittings would produce evident irregularities in the curve when traced with a delicate point on a copper plate; although the same irregularity on paper would not be visible, but appear as a perfect and fair curve.

I have also made an instrument for my own use, for the purpose of assisting engravers, who engrave from my drawings, by describing their ellipses accurately on the copper plates: the first which have been executed by this, are on those plates of the present volume of the Society's Transactions engraved by Mr. Davis, and one of Mr. Grant Preston's Binnacle, engraved by Mr. Turrel. For the former of these gentlemen I am making a large instrument, which he wished to be on the most perfect plan I could devise. It appeared to be particularly desirable to have the means of dividing the circumference of an ellipsis, into any number of divisions in the true perspective appearance of a divided circle, for representing cog wheels, the ornaments, columns, &c. of circular buildings, arched windows, and other purposes, which constantly occur to artists. In this I have succeeded perfectly, having invented a general method of dividing the circumference of an ellipsis into any required number of divisions which shall be the representation of a divided circle, either in true perspective, which is called by artists the scenographic projection, where the divisions on that side of the ellipsis most distant from the eye will be smaller than those on the front side, which are nearer to the spectator;

this is very clearly explained by fig. 3, Plate 5, of specimens of curves drawn by the instrument. The same instrument will divide in the orthographic projection, where the eye being supposed to be at an infinite distance from the object, the rays fall parallel on the picture, and project the divisions on the distant and adjacent sides of the same dimensions, and only give that difference in the several divisions which is produced from each being viewed in a different degree of obliquity by the eye. This method of dividing is founded on a principle, which, to the best of my knowledge, is a new discovery, no general method of dividing an ellipsis having yet appeared. I have made a model, to which the dividing apparatus applies, and acts very completely, as will be evident from an inspection of the divisions of the compass, fig. 3, in the plate of specimens, and also in the teeth of the cog wheel and trundle of the drawing of Mr. Durand's machine for braking hemp and flax, Plate 17, both which are drawn on the copper by this instrument. When the instrument is set to describe a straight line, as explained in the description of it, if the dividing apparatus is applied, it will divide the line into equal divisions proper to represent the edge of a cog wheel, the middle division being of its full dimensions, and proceeding from thence towards either end, they gradually diminish, till at the ends they vanish. When adjusted to describe a circle, it will divide the circumference into any number of equal divisions; or for any ellipsis, it will give either orthographic or scenographic divisions, as before mentioned.

Several improvements in the mechanical construction of the dividing apparatus having suggested themselves since the model was finished, I wish to prove them by practical application to a large sized instrument, before

I submit a full description of it to the Society, and being now much engaged in other matters, I fear this cannot be done in time for an engraving to be made for the present volume; but hope, at some future period, to have the honour of presenting a communication on the subject to the Society.

I am, Sir,
Your most obedient servant,
J. FAREY, JUN.

No. 12, *Crown-street, Westminster,*
Dec. 6th, 1813.

To C. TAYLOR, M. D. SEC.

The LESSER GOLD MEDAL *of the Society was this Session voted to* PELTRO WILLIAM TOMKINS, *Esq. of New Bond Street, for refining Ox Gall, so as to make it colourless; and for rendering Water-Coloured Drawings more bright and permanent, by its use. The following Communications were received from him, and Samples of the article, also the Specimens of the Drawings mentioned, are preserved in the Society's Repository.*

SIR,

MR. Tomkins, a friend of mine, an eminent artist, about two years since discovered a method of freeing ox gall from its colouring matter, a thing of great consequence to artists in all delicate colours, as blues, purples, reds, &c. which are more or less tinged by the yellow colour in ox gall, as generally used. Should the Society of Arts deem it worthy of attention, he will disclose the process, which is by no means an expensive one.

I am, Sir,
Your most obedient servant,
THOMAS GILL.

St. James's-street, April 29th, 1812.

To. C. Taylor, M.D. Sec.

N. B. Samples of the colourless ox gall accompany this, which will enable the Committee to compare it with any other preparation thereof, or ox gall itself, as commonly used.

A Description of some of the Properties of the Refined Ox Gall, invented and prepared by Peltro William Tomkins, *Esq. Historical Engraver to Her Majesty, No.* 53, *New Bond Street, London.*

It possesses all the valuable properties of ox gall, as applicable to painting in water colours, with the superior advantages of being deprived of all tendency to putridity, and of all colouring matters.

It combines with, and fixes, all water colours, as they are usually prepared, either by being mixed with them, or washed over them after they are laid upon the paper, &c. It renders blue, purple, red, green, and all other delicate colours, more bright and durable; and, if a small portion of it be added to any of the colours, it causes them to wash more freely and evenly over the surface of the paper, ivory, &c.

Combined with gum arabic, it gives depth of tint, without any unpleasant glossiness upon the surface of the drawing, and prevents the gum from cracking, and the colours are so completely fixed in the paper itself, that subsequent tints can be washed over them without any risque of their becoming foul, or forming improper combinations with the under colours.

Combined with fine lamp black, and gum water, it forms a complete substitute for indian ink.

If it be floated over the surface of drawings, made with chalks, or black-lead pencil, it fixes them firmly; and they may then be washed over with any water colours, previously mixed with a small portion of it, without in the least degree disturbing the chalks or black-lead.

For miniature painting, being washed over the surface of the ivory, it completely removes its greasiness; and being mixed with the colours, it causes them to float freely thereon, and tints may be laid over tints, the colours being struck into the ivory.

For transparencies, oiled paper, being first washed over with the refined ox gall, and permitted to dry, water colours, mixed with some of it, will lie freely, and perfectly smooth upon it, and be so fixed, as not to wash up by the repetition of different glazings of colours, over each other, thus producing depth of colour.

In short, the valuable properties this refined ox gall possesses, makes it equally applicable to historical, landscape, botanical, and natural history painting, as well as to colouring prints in general; and, by its readily combining with all the vehicles used in the preparation of water colours, and having no colour in itself, it enables the artist to paint with ease on surfaces otherwise unfavourable, at the same time rendering the colours more bright and durable.

Many other valuable properties will, no doubt, on trial, be found in this preparation; and the result cannot fail to facilitate and improve the art of painting, in water colours; and, as the discovery of it is entirely new, it will in all probability be found applicable to many other useful purposes.

P.W. TOMKINS.

May 20th, 1812.

Ox Gall,

deprived of its tendency to putridity, and its colouring matter, so detrimental to all delicate colours, is prepared in the following manner:—

Process.

To a pint of fresh ox gall, boiled and skimmed, put one ounce of allum, finely powdered; continue it on the fire until combined; when cold, put it into a bottle, and cork it moderately close.

To another pint of fresh ox gall, alſo boiled and skimmed, put one ounce of common salt, and continue it on the fire until combined; when cold, put it into another bottle, and cork it moderately close.

Gall, thus prepared, will keep perfectly free from putridity, or any offensive smell, for years.

When the above preparations have stood in a room, of a moderate temperature, for about three months, they will deposit a thick sediment, become clear, and fit for use in ordinary purposes; but as they contain a large portion of yellow colouring matter, tinging blue of a greenish hue, reds, brown, and sullying purples, they are unfit for general use in painting in water colours.

Further Process.

The before-mentioned preparations, after standing until become perfectly clear, are to be decanted and combined in equal proportions; a thick coagulum is instantly formed of the yellow colouring matter, which precipitates, leaving a clear liquid, namely, the colourless ox gall.

N. B. After the combination of the two first preparations, the process may be assisted by filtering the liquid through paper. Age renders this preparation more brilliantly clear, and by it, it seems to obtain an agreeable scent; nor has it been observed to contract, at any time, an unpleasant smell, or to lose its useful properties.

P. W. TOMKINS.

SIR,

Herewith I send you a certificate from Mr. Cosway, and Miss Jones, in testimony of their approbation of my refined ox gall; and likewise a farther description of its properties and uses in the art of water colour painting; together with a sketch made in black chalk, fixed by means of it, and afterwards washed over with water colours, also mixed with it, to shew that the chalk is so firmly fixed as not to mingle with the water colours in the least degree; and also a specimen, produced, with a mixture of fine lamp-black, and gum water: which, combined with a portion of the refined ox gall, becomes a complete substitute for the best indian ink; and which you will please to add in elucidation of my former communications upon that subject to the Society.

I am, Sir,

Your most obedient servant,

P. W. TOMKINS.

No 53, *New Bond-street, May* 20*th*, 1812.

To C. Taylor, M.D. Sec.

Certificates.

Miss Jones presents her compliments to Mr. Tomkins, and having made trial of his preparation for painting in water colours, she has found it fully to possess every property he ascribes to it, in its application upon ivory, as well as paper.

Mr. Cosway has also commissioned Miss Jones to say, that he has found the result of its trial in every degree satisfactory.

No. 127, *Mount-street, May* 19*th*, 1812.

To P. W. Tomkins, Esq. &c.

SIR,

Mr. P. W. Tomkins brought me, on Thursday, a specimen of clarified gall, describing it as possessing important properties, as applicable to painting in water colours, and desiring my opinion of it after a trial. I lost no time in making the necessary experiments, and, as the recent kindness of the Society to two of my children, had previously decided me to use every endeavour in my power to assist and promote its objects, I have preferred to send my opinion to you, for the consideration of the proper Committee. Three of my experiments accompany this.

Mr. Tomkins stated his clarified gall to possess the property of laying water colours perfectly smooth on an oily or greasy surface; of considerably fixing such colours, whenever applied; and also of adding brightness, in all cases, without discolouring the purest blue and white. With a view to the first point, I gave the vehicle a severe trial, by using it with water colour, on an oiled paper, taking the mezzotint first, as is my usual practice. I found, in (No. 1), that the quantity of gall that could be employed with so deep a tone of colour, was not sufficient to counteract the oil; but, observing in the subsequent proceedings, that the colour flowed perfectly smooth where thinly applied, and that there was no effect, from the oil, wherever the colour had once passed and dried, I made the small sketch (No. 2) on the same oiled paper, washing it over first with the gall alone. I found this to answer, most perfectly, in removing the greasiness of the surface; and it also convinced me of the power of Mr. Tomkins's material, to fix water colours, by my having been able to wash over the small lines of ropes, of the vessel, in front, without the least disturbing the colour. This last I have regarded as an important desideratum in the use of water colours, and it led me to make the slight sketch (No. 3) to ascertain the other points asserted of his vehicle, by the inventor. I tried it, also, in the most difficult cases for painting on ivory; and I am confident, in stating to the Society, that it possesses all the properties Mr. Tomkins attributes to it; that the discovery will confer most valuable benefits on every painter in water colours, who is master of his profession; and that it is highly deserving the countenance of the Society.

I am, Sir,

Your most obedient servant,

W. Craig.

Charlotte-street, May 11th, 1812.

Sir,

Mr. Tomkins having, by desire of the gentlemen of the Committee of Polite Arts, referred to me to make trial of his refined preparation of ox gall, I have accordingly done so, and (allowing for the shortness of time since Mr. T. applied) have found it greatly superior to any I have hitherto used, and fully to possess the qualities described.

I remain, Sir,

Your obedient servant,

John Wright.

Burlington Gardens, corner of Old Bond-street,
May 13th, 1812.

Dear Sir,

I am really ashamed I have not written before, to thank you for your present of the preparation of ox gall. I have used it in various ways, and find it answer my expectations perfectly, as to making colours flow pleasantly on any surface of ivory, though long prepared.

Its being so perfectly transparent makes me conclude, it may be used with safety with most colours; and I hope it will answer the very purpose you wish it, as to not injuring the effects of them, which time only can ascertain.

With sincere esteem,

I remain, your's truly,

GEORGE ENGLEHEART.

Hertford-street, June 17th, 1812.

To MR. TOMKINS, &c.

DEAR SIR,

I TAKE the liberty of requesting, as a favour, a little more of your prepared ox gall; I find it so extremely useful, that I wish never to be without it. You desire to have my opinion of its qualities, as I have found them. I consider it possessing all properties of the gall, in its original state, with this great advantage, that by being rendered clear as water, it does not change or soil the colours; if any thing, it adds, I think, to their brilliancy; and the most valuable property it has, is of fixing the colours in the paper, and thereby preventing, in washing one tint over another, moving the under tint, this is an advantage highly important and valuable. In fine, I think, that as a medium for facilitating the use of water colours, it is a discovery which cannot be too highly valued. This, Sir, is my humble and sincere opinion of it.

I remain, Sir,

Your obliged humble servant,

JOSEPH PASTORINI.

Rathbone Place, March 4th, 1812.

My Dear Sir,

Receive my sincere thanks for your kindness, in sending me a sample of your new discovered liquid, for painting in water colours, which I have used with success; and I purpose, when you make it public, to procure some for my own use, and shall recommend it to others, doubting not, that my brother artists will (as well as myself) find that it facilitates the execution, and adds brilliancy to the colours.

Believe me, dear Sir,
Your obliged servant,
P. Violet.

Upper James-street, Golden-square,
Feb. 26*th*, 1813.

To P. W. Tomkins, Esq.
New Bond-street.

Sir,

I have made several experiments with the preparation of ox gall left with me, by the desire of the Committee, and I find it to be extremely useful, not only in its causing the colour to lie smooth, on greasy paper, but on fixing colours that are apt to stir, on the immediate use of the sponge, by which means we can gradually diminish their depth, without losing all the force at once, or having the green colours of trees running over the skies, and mixing with the blue the moment they are wetted.

I am, Sir,
Your most obedient servant,
John Varley.

No. 15, *Broad-street, March* 2*nd*, 1813.

To C. Taylor, M. D. Sec.

SIR,

In conformity to the wishes of the Committee of Polite Arts, I send you two phials, containing the preparation of ox gall; likewise a sketch, made with black Italian chalk, fixed by means of it, and afterwards frequently washed over with water colours, in which I also put a small portion of it; and another specimen shewing, that the smoak of a common candle, caught on an earthen or glazed surface, and mixed with gum-water, and further mixed with my preparation of colourless ox gall, becomes completely fixed in the paper, and forms so complete a substitute for India ink, that the difference cannot be discerned. This composition does not require grinding; it lies perfectly smooth and transparent, and receives a wash of any colour over it, exactly the same as India ink, and cannot be washed off without destroying the surface of the paper.

I am, Sir,

Your most obedient servant,

P. W. TOMKINS.

To C. Taylor, M.D. Sec.

The SILVER MEDAL *and* TWENTY GUINEAS, *the Premium offered by the Society, in Class* 120, *were this Session adjudged to Mr.* WILLIAM TALLMACH, *Castle-street, Oxford-street, for a Bronze Cast, of Venus disarming Cupid. The following Communication was received from him, and a Model, executed by him, is preserved in the Society's Repository.*

SIR,

THE method used by me to produce the cast, which has been honoured by the Society's approbation, is the same which is commonly practised by metal casters, from a mould called a sand mould, to distinguish it from one which is sometimes used, made with brick-dust and plaster of paris.

The figure intended to be cast, must have what is usually termed bearings, fixed at the most convenient parts of it, for the purpose of supporting, at the time of melting, the core in the mold, so that the metal may run without obstruction.

Great care should be taken in placing the clay within the mold, that it be all of an equal thickness, which is not generally sufficiently attended to, so that the core, when suspended, is not in all parts equally distant from the face of the mold, which it ought to be.

The mold must be completely dry, and sufficient apertures made, all leading upwards, to permit the air to escape.

Various mixtures of metals are made for the purpose, but that of the produced cast, was formed from brass and copper, but the greatest proportion of the former.

I remain, with great respect,
Sir,
Your obedient humble servant,
WILLIAM TALLMACH.

Castle-street, May 20th, 1813.

To C. TAYLOR, M.D. SEC.

TEN GUINEAS *were this Session voted to Mr.* CHARLES WILSON, *Worcester-street, Borough, for a Method of preserving Oil Paintings from decay. The following Communications were received from him, and a Specimen of an Oil Painting, thus guarded, is preserved in the Society's Repository.*

SIR,

I BEG leave to submit to the inspection of the Society, an invention of mine to preserve oil paintings, by defending the canvas from decay, and which I hope will be found deserving of their approbation.

I remain, Sir,
Your humble servant,
CHARLES WILSON.

Worcester-street, Borough,
March 16th, 1813.

To C. TAYLOR, M.D. SEC.

Mr.

Mr. WILSON's *Process for preserving the Canvas in Oil Paintings, and repairing Defects therein.*

1st. SEPARATE the canvas from the pannel, or straining frame, and lay it on a smooth table, with the painting downwards, and nail it securely.

2nd. Take a piece of tin foil, larger than the canvas, place it on a very smooth table, and make the tin foil as smooth as possible with your hand. Then melt some Salisbury glue, in the same manner as for cabinet-makers use.

3d. Warm the tin-foil, before the fire, and lay it again on the table, then wash it over with the glue, and place it on the back of the canvas, secured as above, as quick as possible; smooth it perfectly with the hand, and let it remain in a warm room to dry.

4th. To repair the cracks of the canvas, in an old oil painting, lay it on a very smooth table, the subject downwards, then, with a brush or fine linen, cover the canvas with some melted white wax, and, with a warm flat smoothing iron, rub over the wax, and press it hard, which will draw the colours up to the canvas.

5th. To varnish the painting, clean the picture well, take some white wax, and spirits of turpentine, with a small quantity of linseed-oil, and sugar of lead; melt them over the fire, dip a fine linen rag therein, with which wash your painting; then, with a fine linen rag, rub over the varnish, till it begins to be polished; let it remain till next day, and then rub it over with a fine waxed cloth, and afterwards with a soft linen cloth, using them alternately, by which means the painting will receive a very fine polish.

By the above means, the cracks and small holes in old paintings may be closed and repaired, and a coat of tin foil may be afterwards glued on the back of the canvas, as above-mentioned.

A foot square of the tin foil costs about sixpence; when wanted of a larger size it will cost considerably more in proportion. It may be procured in sheets of three or four feet if wanted.

Five Guineas *were this Session voted to Mr.* **Frederic Williams,** *Brown-street, Bryanstone-street, for an improved Painter's Easel. The following Communication was received from him, an explanatory Engraving is annexed, and an Easel, upon this Construction, is preserved in the Society's Repository.*

To the Society for the Encouragement of Arts, Manufactures and Commerce.

GENTLEMEN,

With a view to benefit an art I much admire, and having often experienced the want of some convenience in drawing scenery from nature, I have so improved the principle of the common easel, as to enable artists to escape the disadvantages to which they have been hitherto subjected. My improvement I call a *Portable Easel,* of superior lightness, utility, and simplicity, and which may be used as a walking-staff. In utility and ease it cannot be surpassed, as it will serve to take a picture of any dimension.

Referring this instrument to the candid consideration of the Society for the Encouragement of Arts, &c.

I am, Gentlemen,
Your most obedient
and devoted servant,
P. F. WILLIAMS.

No. 12, *Brown-street, Bryanstone-square,*
Oct. 27*th,* 1812.

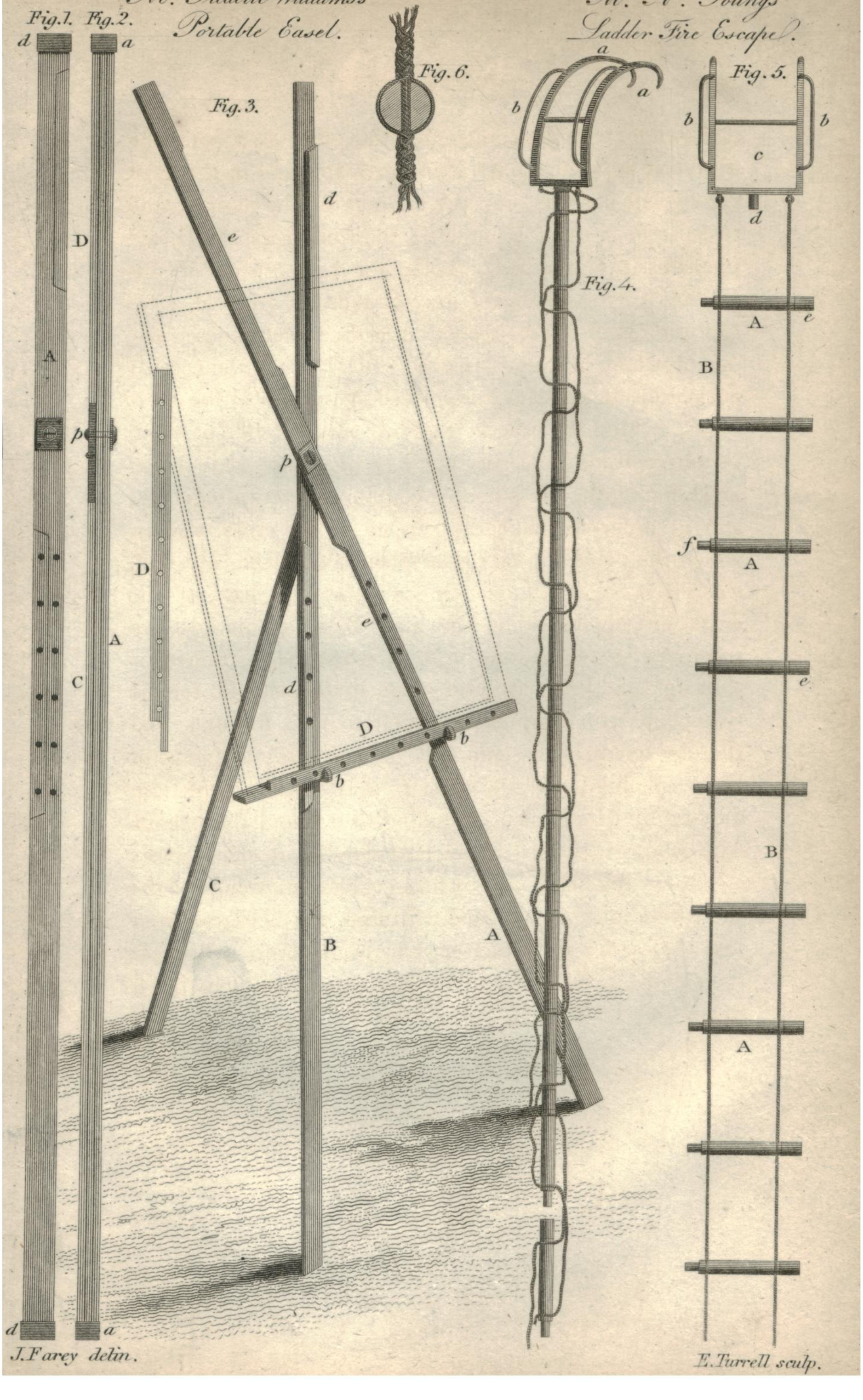
N.B. An easel may be made of mahogany on an apparent lighter construction, and with additional elegance.

Reference to the Engraving of Mr. WILLIAMS's *Portable Easel, for the Use of Painters. Fig.* 1, 2, *and* 3, *of Plate* 6.

THE object of this contrivance is, to render the easel more portable, for the convenience of artists when travelling in the country. This easel, when folded up, forms a square staff, shewn flat-ways in fig. 1, and edge-ways in fig. 2; the rails of which it is composed are kept together for the convenience of carriage, by brass hoops or caps *a a*, fixed on at each end; when set up for use it appears as represented in fig. 3, forming a very secure and steady support for the tablet or picture, represented by the dotted lines; it consists of three deal rods, or bars, A, B, C, the two former being the whole length of it, but the latter only two-thirds; the bars A and B, are united by a center pin, which also passes through one leaf of a brass hinge *p*: the other leaf being screwed to the short bar C, to permit it to be opened out from the others, to any distance, at pleasure. On the joint of this hinge, and the center pin, connecting the other two bars, the easel can be opened out, as in fig. 3, to stand in the most convenient position, for the support of the picture, and to suit the ground if uneven; the front legs, A, B, are pierced with a number of holes, for the reception of pins *b b*, by which two short ledges or rails, D, are held, so as to form a shift for the reception of the tablet; these rails, one of which is shewn separately at D, when the easel is packed up for carriage, are placed at the end of the short leg C, behind the others; the two smaller ends of them being received into a gap, made in the hinge, as is shewn at D, fig. 2: the brass hoop *a* containing them altogether; and in order to make the surface of the cross, against which the picture rests, flat or plane, two pieces of wood, *d d*, fig. 3, of the same thickness as the bars of the cross, are applied upon the limb B, which fit into two spaces *e e*, made in the limb A, when the instrument is shut up; and holes are also made in the bar D, for the two pegs, which support the shelf to pass through, and thereby to retain the bars A B, in any required extent of their opening; and the prop C may be also kept from moving by wire hooks, extending to it, from those bars. The whole instrument may likewise be rendered more steady, in the fields, &c. by forming the lower ends of the three bars into points, shod with iron, the better to enter into the earth; and which may be rounded off a little at their ends, so as not to injure the carpet, or floor, of a room.

Mr. Frederic Williams's Portable Easel.

Mr. A. Young's Ladder Fire Escape.



J. Farey delin.

E. Turrell sculp.